

PATENT COOPERATION TREATY

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From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT
(PCT Rule 71.1)

To:

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20 JAN 2005

BEANTWOORD

Date of mailing
(day/month/year)

14.01.2005

Applicant's or agent's file reference

P01223PC00

IMPORTANT NOTIFICATION

International application No.

PCT/NL 03/0633

International filing date (day/month/year)

12.09.2003

Priority date (day/month/year)

13.09.2002

Applicant

NEDERLANDSE ORGANISATIE VOOR TOEGEPAST- ...et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IBA01).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed invention is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international
preliminary examining authority:

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P61223PC00	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/NL 03/00833	International filing date (day/month/year) 12.09.2003	Priority date (day/month/year) 13.09.2002
International Patent Classification (IPC) or both national classification and IPC A23L128		
Applicant NEDERLANDSE ORGANISATIE VOOR TOEGEPAST- ...et al.		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.18 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 2 sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>		
Date of submission of the demand 21.04.2004	Date of completion of this report 14.01.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 6818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 opo nl Fax: +31 70 340 - 3016	Authorized Officer Boddaert, P Telephone No. +31 70 340-3471 	

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**International application No. **PCT/NL 03/00633****I. Basis of the report**

1. With regard to the elements of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-14 as originally filed

Claims, Numbers

1-12 filed with telefax on 03.09.2004

Drawings, Sheets

1/8-8/8 as originally filed

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**International application No. **PCT/NL 03/00633**

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-7,12
	No: Claims	8-11
Inventive step (IS)	Yes: Claims	1-7
	No: Claims	8-12
Industrial applicability (IA)	Yes: Claims	1-12
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/NL 03/00633

Re Item V

Reference is made to the following documents :

- D1: Food Science , Taiwan (1998), 25(1), 94-103
- D2: JP(A) 09000195
- D3: JP(A) 11000046
- D4: JP(A) 2001028947
- D5: Food Science , Taiwan (1998), 25(4), 497-504
- D6: Journal Of Food Science And Nutrition (2001), 6(1), 16-18
- D7: Journal Of Radiation Research (1987), 28(4), 233-242
- D8: Mushroom Journal (1986), , 68-70
- D9: Journal Of Radiation Research (1979), 20(2), 186-195
- D10: Mycological Research (1998), 102(12), 1459-1483
- D11: Photobiochemistry And Photobiophysic. (1983), 6(4), 239-247

Remark : The terms 'an effective amount'(claim 1) , 'a substantial amount'(claim 4) , 'a shelf life at 10°C of more than 12 days'(claim 9) , 'essentially free'(claim 11) and 'substantially','approximately'(claim 10) are either relative terms or define the subject-matter in terms of the result to be achieved or do not appear to have a precise meaning , contrary to Article 6 PCT. These unclear features have not been taken into account for assessing novelty.

1. Document D6, which is considered to represent the most relevant state of the art (method) , discloses (p. 16-18) a method for preventing or inhibiting the formation of browning in mushrooms by inhibiting the mushroom tyrosinase activity with onion extract ; from which the subject-matter of claim 1 differs in that the mushrooms are exposed to UV-light having an exposure energy in the range of 0.001-0.25 J/cm² based on the amount of UV-light.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as finding an improved alternative method for inhibiting or preventing spot formation at the surface of edible mushrooms.

In D6 no hint is given that would solve the problem. Also none of the other prior art documents would lead the skilled person to the solution stated above.

Thus the subject-matter of claim 1 also involves an inventive step (Article 33(3) PCT).

Claims 2-7 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/NL 03/00633

2. The present application does not meet the requirements of Article 33(2) PCT because the subject-matter of claims 8-11 is not new.

Claims referring to a product produced by a specific process are admissible only if the products as such fulfill the requirements for patentability. A product is not rendered novel merely by the fact that it is produced by means of a new process.

a. Document D1 discloses (abstract) the decrease in microbial counts of *Agaricus bisporus* (button mushrooms) when irradiated with ultraviolet-C (UV-C) light. The technical features of claims 9, 10 are considered intrinsic features. The surface is free of added preservatives.

The subject-matter of claims 8-11 is therefore not new.

b. Document D2 discloses (abstract) treating mushrooms with ultraviolet light, and is intrinsically considered having a 'shelf life' at 10°C of more than 12 days. The surface is free of added preservatives.

The subject-matter of claims 8-11 is therefore not new.

c. It appears documents D3(abstract), D4(abstract) and D5(abstract) also deprive claims 8-11 of novelty.

3. The present application does not meet the requirements of Article 33(3) PCT because the subject-matter of claim 12 does not involve an inventive step.

Document D6, which is considered to represent the most relevant state of the art, discloses (p. 16-18) the use of onion extract for preventing or inhibiting the formation of browning in mushrooms by inhibiting the mushroom tyrosinase activity (see also D8 (p.68-70) or D10 (abstract)) ;

from which the subject-matter of claims 12 differs in that UV light is used.

The (objective) problem to be solved by the present invention may therefore be regarded as finding an alternative way to inhibit mushroom tyrosinase.

The solution proposed in claim 12 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons.

The use of UV light to inactivate mushroom tyrosinase is already described in documents D7(abstract), D9(abstract) or D11(abstract). The skilled person would therefore regard it as a normal option to include this feature in the method and use described in document D6 in order to solve the problem posed.

Thus, the subject-matter of claims 12 does not involve an inventive step and does not satisfy the criterion set forth in Article 33(3) PCT.

10/527558

DT15 Rec'd PCT/PTO 11 0 MAR 2005

Int. pat. appln. no. PCT/NL03/00683
Our letter of 3 September 2004

EPO - DG 1

03. 09. 2004

New Page 15

New claims

(65)

1. A method for inhibiting or preventing spot formation at the surface of edible mushrooms, wherein the mushrooms are exposed to an effective amount of UV-light, said UV-light having an exposure energy in the range of 0.001-0.25 J/cm² based on the amount of UV-light.
- 5 2. A method according to claim 1, wherein the mushrooms are exposed to 0.01-0.15 J/cm² exposure energy, based on the amount of UV-light, preferably 0.08-0.1 J/cm² exposure energy, based on the amount of UV-light.
3. A method according to any of the preceding claims, wherein the mushrooms are exposed to UV-light coming from a continuous light source.
- 10 4. A method according to any one of the preceding claims, wherein a substantial amount of the UV-light to which the mushrooms are exposed is UV-C light.
5. A method according to any of the preceding claims, wherein the mushrooms are exposed to the UV-light at least prior to harvesting.
- 15 6. A method according to any one of the preceding claims, wherein the mushrooms are button mushrooms.
7. A method according to any one of the preceding claims, wherein the mushrooms are picked in a mechanical manner.
8. A mushroom, obtainable according to the method according to any one of the preceding claims.
- 20 9. A mushroom with a shelf life at 10°C of more than 12 days, preferably of at least 16 days.

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New page 16

10. A mushroom according to claim 8 or 9, wherein on at least a part of the surface a top layer is present, containing, at least substantially, dead cells, which top layer has a thickness of, on average, approximately 75-175 μm .
11. A mushroom according to any one of claims 8-10, the surface of which is
- 5 essentially free of added preservatives.
12. The use of UV-light for reducing or preventing formation of brown spots at the surface of an edible mushroom.

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AMENDED SPECIFICATION